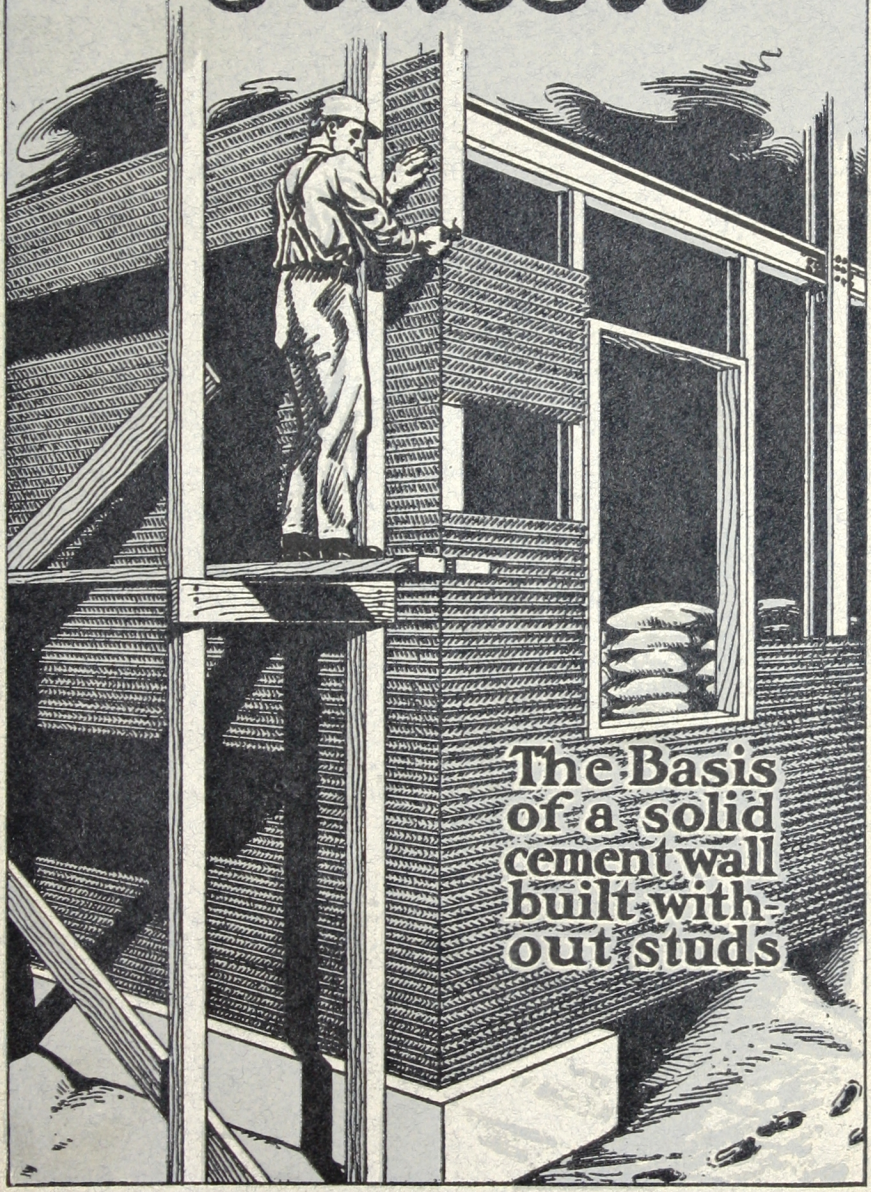
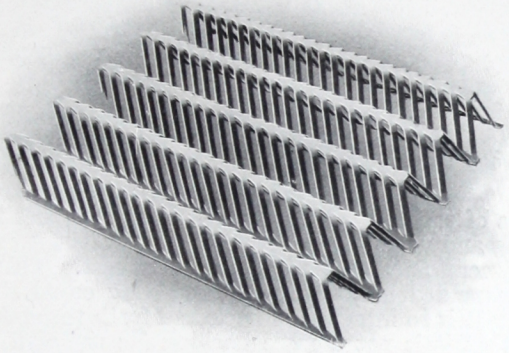
88-6

"Trussit"



The Basis of a solid cement wall built without studs

"Trussit"



The Basis of a Solid Cement Wall Built Without Studs

JULY 1st, 1914

The General Fireproofing Co.

Youngstown Ohio

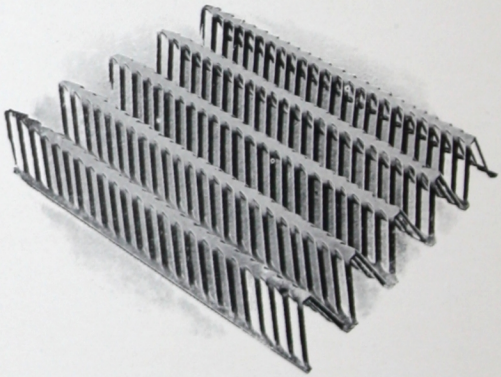
CHICAGO—323-331 W. Madison Street
ATLANTA—Third National Bank Building
EXPORT DEPT.—396 Broadway, New York City

"Trussit" is a corrugated expanded steel sheet, for fireproof walls and partitions. The chief advantages for Trussit as a reinforcement of this kind are that it eliminates entirely the use of permanent studding and permits of the erection of partitions but 2 inches in thickness, space saving and wonderfully rigid; curtain walls the equal of brick or poured concrete at practically half their cost. This material is uniformly expanded in both directions, giving equal strength from either side. It is so interwoven back and forth through the cement or plaster that it is not a mere backing for the wall but it is an integral part of it. This uniform distribution of the metal also overcomes any tendency toward expansion or contraction in any one general direction, due to changes of temperature.

Trussit Data

Standard size sheets are 19 x 96 inches, but Trussit is also carried in stock in lengths of 8, 10, and 12 feet, also 8-foot 4-inch lengths in 27 gauge. Intermediate lengths supplied from stock will be cut from the next longer sheet and waste charged to customer.

Always packed 10 sheets to the bundle.



GAUGE	WEIGHT PER SQUARE FOOT	
	Plain or Painted	Galvanized
27	.57 lbs.	.68 lbs.
26	.62 lbs.	(not made)
24	.83 lbs.	.88 lbs.

Trussit cut from galvanized sheets can be supplied from stock in 8-foot lengths only. Orders for other lengths will be subject to delays incidental to delivery of sheets from the mill.

Trussit can also be furnished cut from American Ingot iron in 8-foot lengths from stock and in other lengths from mill shipment of sheets.

Where Trussit is Used

Solid Partitions

Trussit is the basis of a solid partition erected without the use of studs. These partitions show maximum strength and rigidity with minimum weight, embody simplicity of construction by eliminating permanent studding, and have a wide range of adaptability for all classes of buildings.

Trussit is especially suitable for solid partitions in storerooms, office buildings, warehouses, factories, machine shops and general mercantile buildings, also extensively used for elevator and air shafts.

The use of Trussit in solid partition construction gives a wall 1½ inches thick, or as much thicker as desired, constructed without permanent studding of any character, yet making an unusually fireproof plastered partition. Statistics from recent large conflagrations show that solid partitions are of the most durable type, even when exposed to intense heat.

The space-saving features of such a partition cannot be overestimated. When compared with the ordinary 6-inch partition, a Trussit partition means a saving of one square foot of floor space to every three lineal feet of partition. In office buildings where floor space is worth from $1.50 to $3.50 per square foot, this means a sufficiently increased income to pay for the partition outright in a short time, and what is more, this increased income is not for one year only, but every year thereafter.

In factories, warehouses or any industrial buildings, this increased floor space furnished, as it is, at no increased cost, often is just enough to mark the difference between efficient and non-efficient arrangement of the buildings' contents.

Trussit partitions are economical partitions. The temporary studding required in their erection can be placed very much more rapidly than permanent studding, while the cost is merely nominal, as it is possible to use it over and over again. There is absolutely no waste of plaster, as the first coat applied forms the foundation for the second coat, to be applied on the reverse side. The economy of the construction has made it a great favorite with the building trades throughout the country.

Methods of erection of Trussit partitions under varying conditions are described in detail in the following pages.

Curtain Walls

Trussit as a reinforcement for outside curtain walls of cement gives fireproof construction at a cost much less than that of brick, tile or poured concrete. The slabs are reduced to a minimum thickness, yet they are amply strong and rigid, due to the perfect distribution of the reinforcing metal. Unlike the other walls mentioned, they present a perfect finished appearance from the beginning and never require repairs. They cost somewhat more than the antiquated corrugated iron siding, but the rusting and needed continual painting of the corrugated iron in a short time brings the cost far above that of the Trussit wall.

Such walls are simply and quickly erected, no studding or form work being necessary. The sheets are merely set in place, securely fastened at top and bottom and at all laps and to such structural members as are necessary to support floor and roof. Cement plaster is then applied inside and out and the walls are complete. Such construction is particularly adapted to all classes of industrial buildings.

Fences and Railings

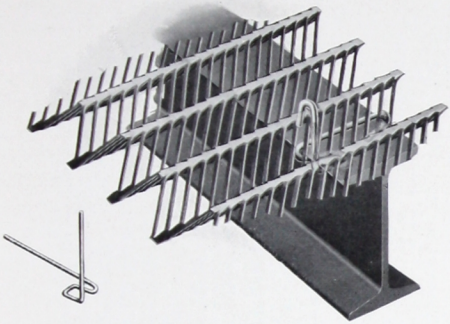
The Trussit fence, while chiefly used for the enclosure of athletic fields, ball parks, amusement parks, etc., is very well adapted for private use, or in fact, any place where a permanent fence is required or where an attractive appearance will be appreciated.

Such a fence is made from Trussit plastered on both sides with cement mortar in the same manner as for exterior walls. The posts may be made from Trussit with corrugations running the long way of the post and the sheets curved or bent to the form of post desired; plastered on the outside and filled with concrete.

This fence, properly constructed, never requires repairs or painting and gives an appearance of age and stability only equalled by the old-time stone wall, the cost of which is prohibitive in most cases.

Trussit railings for bridges and inclined runways are made in the same manner and the fact that they are built without forms of any kind makes them much less expensive than the ordinary concrete railings used for this purpose.

Trussit Clips



Clip No. 3

This clip is used for attaching Trussit to I-beam and channels. When ordering give the size of structural members to be used, or order by following style numbers:

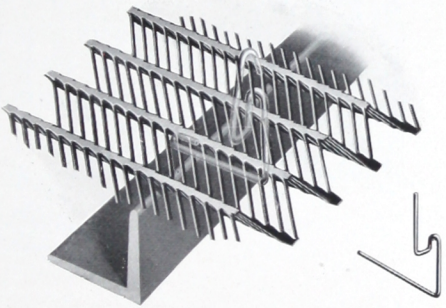
I-beams up to 8-in. and all channels - - -Style 3.55
I-beams 9-in. to 15-in. -Style 3.7
I-beams 15-in. to 24-in.-Style 3.9

Clip No. 4

This clip is used for attaching Trussit to all angles. Always give the size of angles to be used, or order by following style numbers:

Angles under 3-in.x3-in.-Style 4.75
Angles over 3-in.x3-in.-Style 4.10

Both of these clips are made of No. 10 U. S. G. soft annealed wire and are very easy to place.

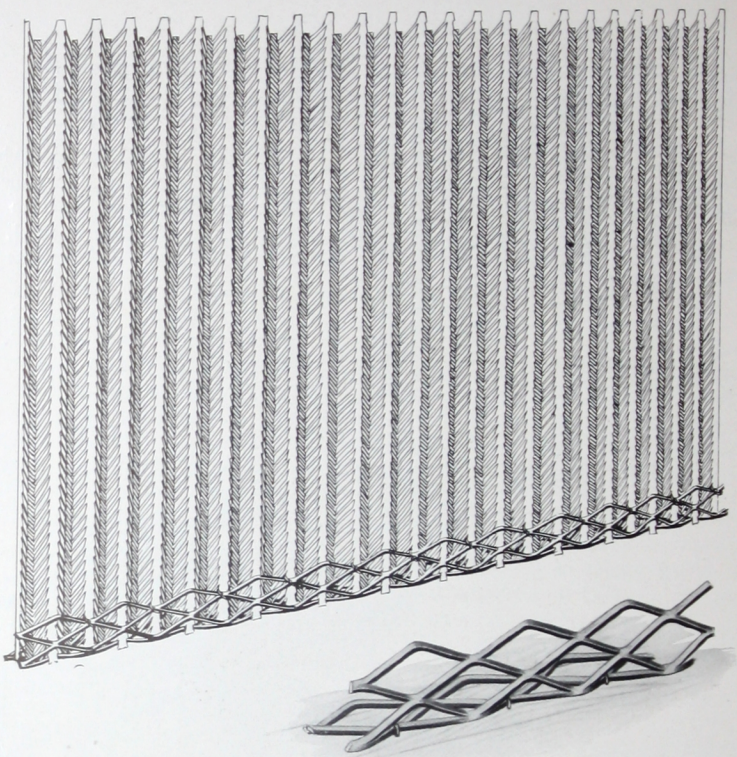


Trussit for Export

Trussit for export is not crated but the ends are securely protected with burlap wrapping and the sheets themselves nest so closely together that the bundle is very compact and readily handled with no danger of damage enroute.

Measurements and weights of bundles for export are as follows, based on standard 8-foot sheets:

Gauge	No. of Sheets	Cubical Contents	Wt. in Lbs.	No. Sq. Ft.
27	10	2½ Cu. Ft.	73	126⅔
26	10	2½ Cu. Ft.	79	126⅔
24	10	3½ Cu. Ft.	105	126⅔
27 Galvanized	10	2½ Cu. Ft.	90	126⅔
24 "	10	3½ Cu. Ft.	125	126⅔



Expanded Metal Angle for Attaching Trussit to Floor or Ceiling

This offers the simplest and most efficient method of attaching Trussit to floor and ceiling. The expanded metal angle is made from No. 13 gauge steel and furnished in lengths up to 8 feet. The meshes are ¾ inch wide by 1½ inches long. The angle is merely laid along the line of the proposed partition, stapled to the floor every three feet and the Trussit wired securely to the other leg of the angle. This angle offers no obstruction to the plaster; it is merely imbedded in it and becomes an integral part of the partition, making the fastening absolutely permanent.

There are a number of other methods used for this class of work, however, and the best of these are shown in the following pages.

The following pages of this book are devoted to Detail Working Drawings, Specifications and pictures of unfinished and finished Trussit Construction.

Trussit for Partitions

Working Drawings - - - 8 to 12
Specifications - - - - - 13
Pictures of Work during Construction 14 to 17
Pictures of Finished Work - - 18
Fire Test - - - - - - 19

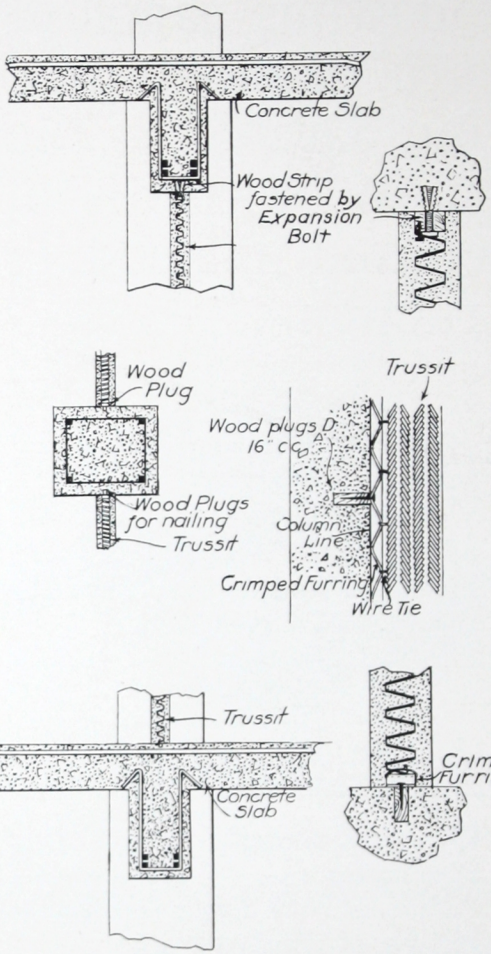
Trussit for Curtain Walls

Working Drawings - - - 20-21-22
Specifications - - - - - 22-23
Pictures of Work during Construction 24 to 26
Pictures of Finished Work - - 27-28

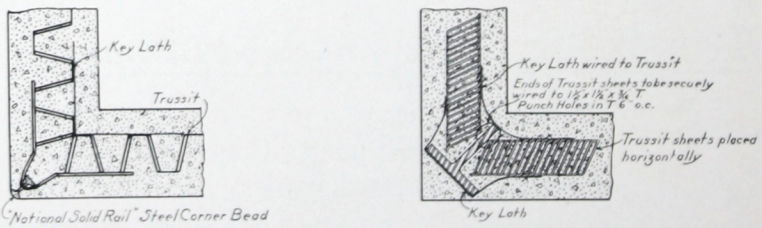
Trussit for Fences and Railings

Working Drawings - - - 29-30
Pictures of Work during Construction 30-31
Pictures of Finished Work - - 32

Detail of Trussit Partition Work

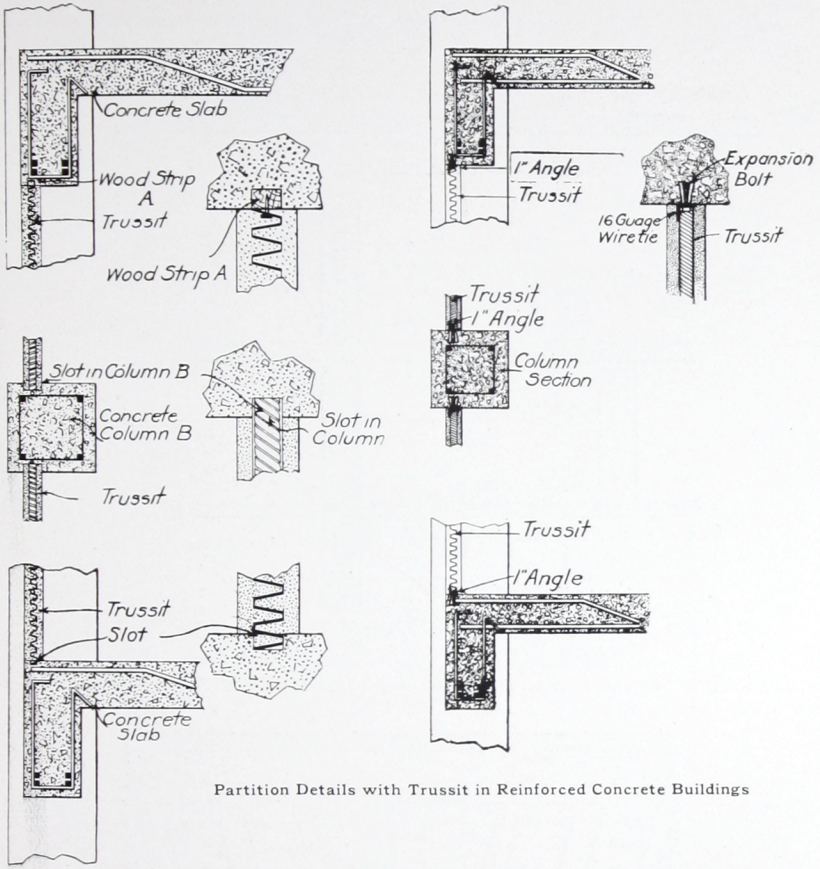


Trussit Partitions in Reinforced Concrete Buildings

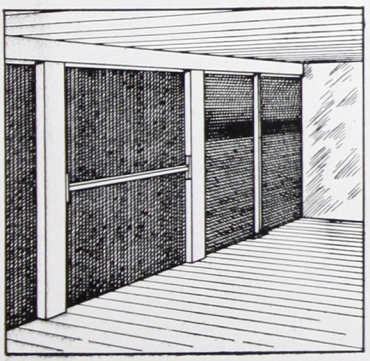

Key Lath
Trussit
"National Solid Rail" Steel Corner Bead
Key Lath wired to Trussit
Ends of Trussit sheets to be securely wired to 1½ x 1⅛ x ¾ T. Punch Holes in T 6" o.c.
Trussit sheets placed horizontally
Key Lath

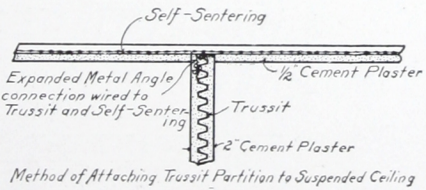
Framing for Exposed Corners on Trussit Partitions

Detail of Trussit Partitions



Partition Details with Trussit in Reinforced Concrete Buildings



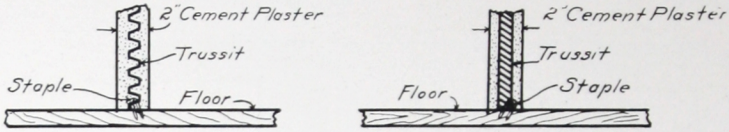


Method of Attaching Trussit Partition to Suspended Ceiling

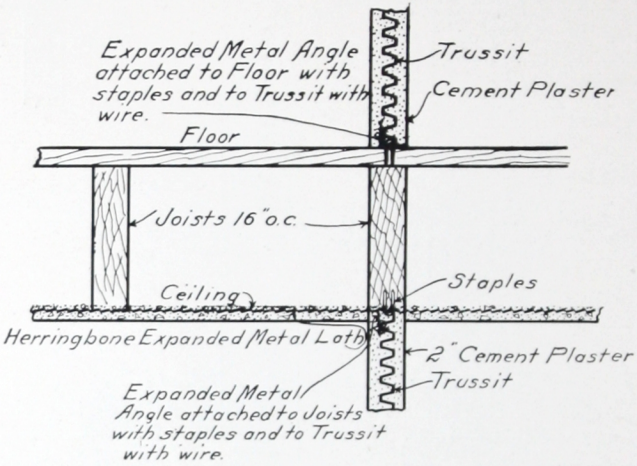
Temporary Bracing of Trussit Partitions

If Supports are too far Apart to be Spanned by One Brace, the Horizontal Braces may be Braced from the Floor

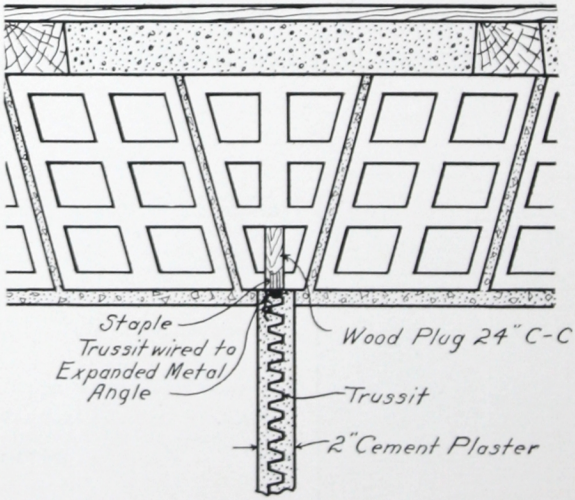
Detail of Trussit Partitions



Attaching Trussit Partitions Direct to Wood Floor

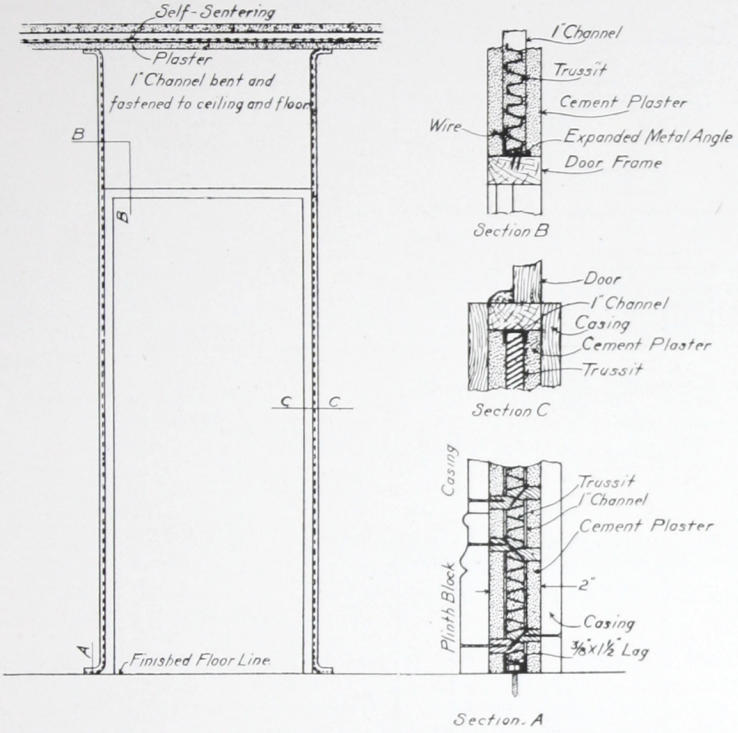


Attaching Trussit Partitions to Wood Floor and Ceiling Joists with Expanded Metal Angle

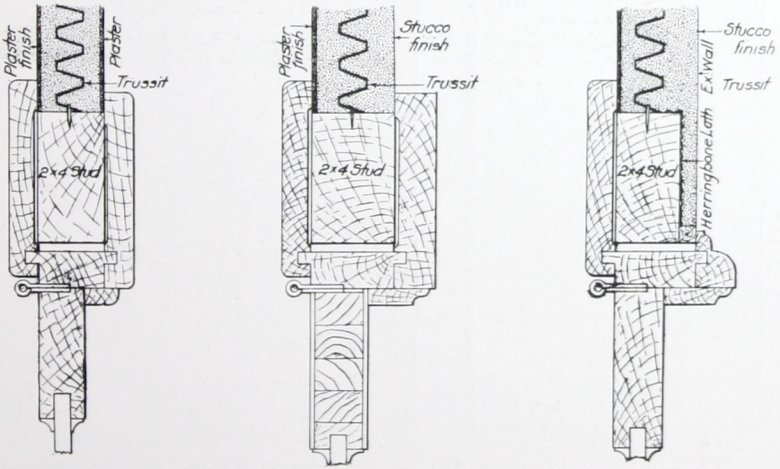


Attaching Trussit Partitions to Tile Floors

Detail of Trussit Partitions

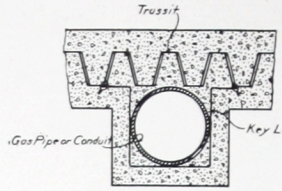


Framing of Wood Doors—Trussit Partitions

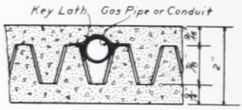


Method of Framing Wood Doors Where Angle Stiffener is Not Used

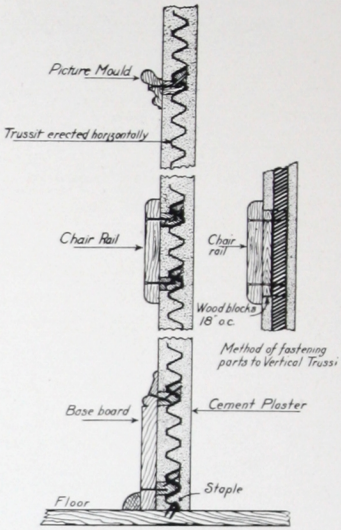
Detail of Trussit Partition Work



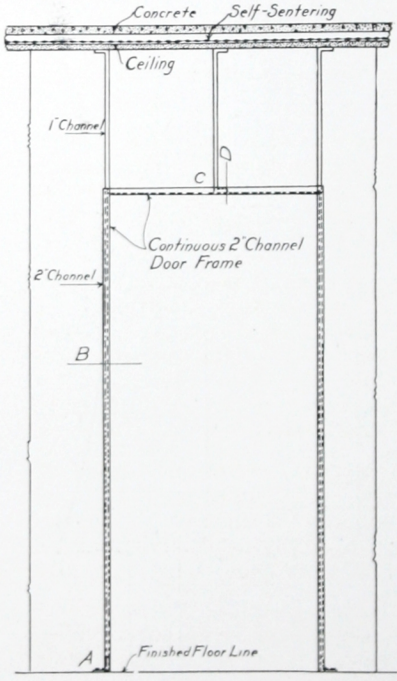
Detail showing arrangement of large pipes in 2" Trussit Partitions.

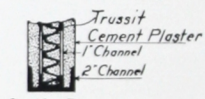


Detail showing Placing of Pipes or Conduits in Trussit Partitions

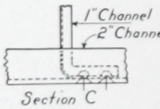


Method of fastening Baseboard, Chair-rail and Picture mould to Trussit

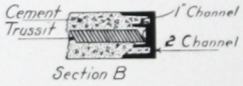




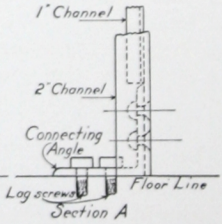
Section D



Section C



Section B



Section A

Steel Door Framing—Trussit Partitions

Solid Partition Specifications

Trussit shall be used for all interior partitions, as indicated on plan.

Height	Trussit
Up to 12 ft.	27 gauge
12 ft. to 15 ft.	26 gauge
15 ft. to 17 ft.	24 gauge

Trussit shall be erected on temporary studding with ribs running either horizontally or vertically. This is to be controlled by general conditions obtaining, the ribs always running the short way of the span.

Temporary studding shall be wedged or lightly nailed in place, spaced on 5-foot centers, with the ribs of the metal running horizontally. If they run vertically, horizontal cross pieces spaced 5 feet on centers shall be wired to the temporary vertical studs or held in place by bracing to the floor.

The metal shall be rigidly wired to temporary studding with the selvedges interlocking, and an end lap of not less than 1 inch. It shall also be attached to all columns, door and window framing and other permanent supports.

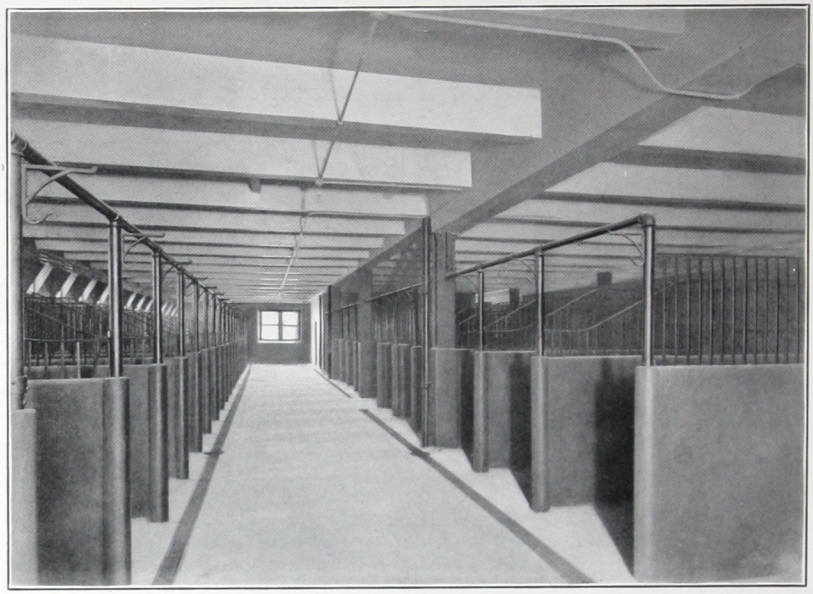
All edge and end laps shall interlock and shall be securely laced with No. 16 gauge tie wire at intervals of about 12 inches, and the top and bottom sheets secured to floor and ceiling by the use of expanded metal angle or other methods as shown in details herewith. The partition is then ready for plaster.

The side opposite temporary studding shall be plastered first. Ordinary patent plasters can be used under certain conditions with good results, but if a cement plaster is used, the following has been found to be the most efficient mix: One part Portland cement, three parts sand and a small amount of hair, well tempered with lime mortar to set up hard and firm. This mortar is applied to a depth of $\frac{5}{8}$ inch over the ribs of the metal and floated to an even surface.

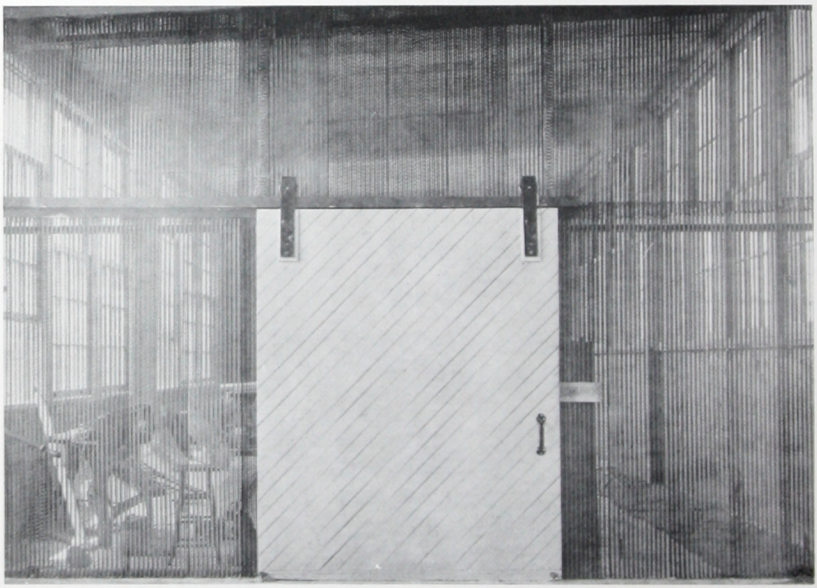
After the first coat has set, the temporary studding is removed and the opposite side plastered in the same manner. The total thickness of the partition is approximately 2 inches. If thicker walls are desired, it is only necessary to apply additional coats of plaster until the required thickness is obtained. This thickness should not exceed $3\frac{1}{2}$ inches, however.

Where baseboards or picture mouldings are required, bevelled wood blocks are fitted into the corrugations of the Trussit before plastering, nailed or wired together and the moulding or baseboard nailed to these blocks as shown.

Trussit Partitions Under Construction

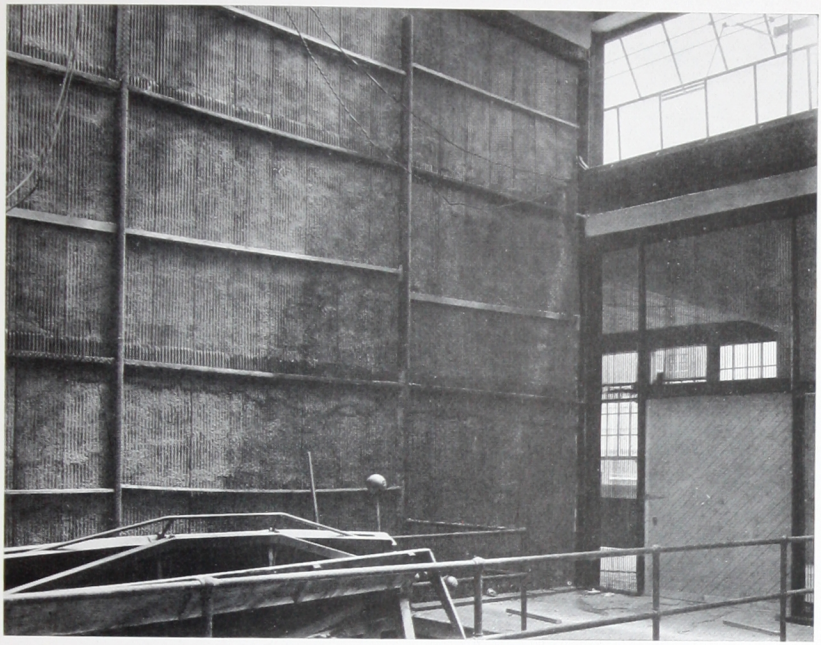


Simon Brewing Co's. Barn, Buffalo, N. Y.
All Stall Partitions made of Trussit

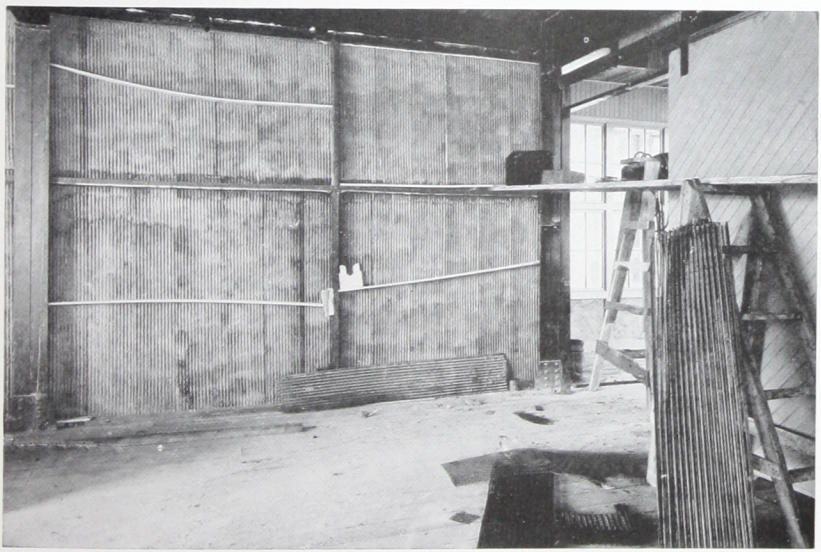


Trussit Partition Ready for Plaster

Trussit Partitions Under Construction

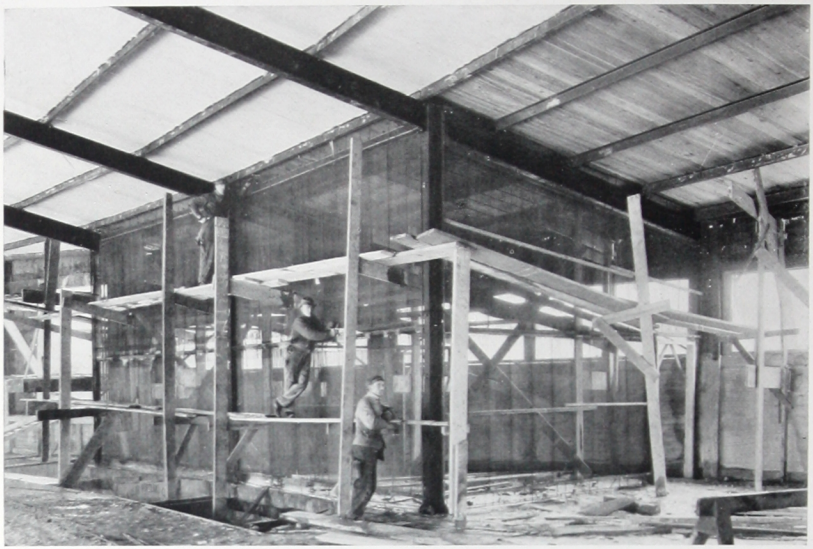


Trussit Partitions—Machine Shop, The Republic Rubber Co., Youngstown, O.
Engineers: The Osborne Engineering Co., Cleveland, O.

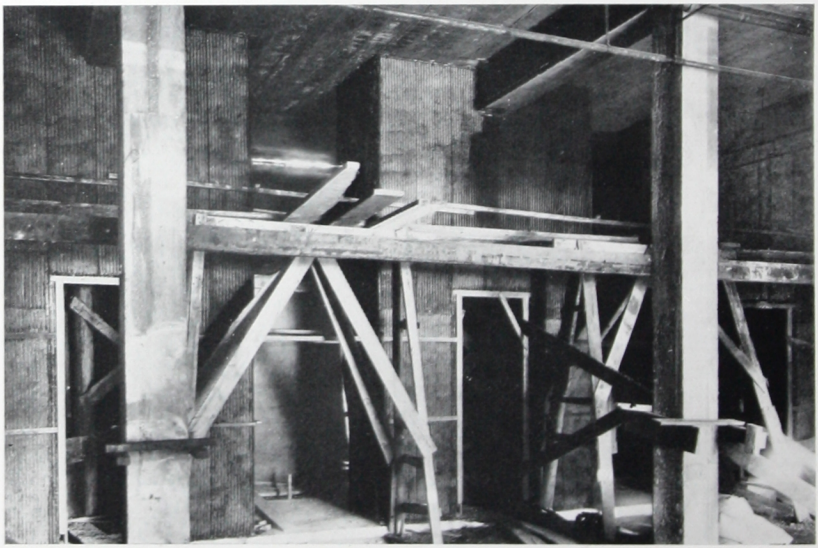


Trussit Partition—Scratch Coat Applied on Opposite Side
Note Simple Character of Temporary Bracing Used

Trussit Partitions Under Construction

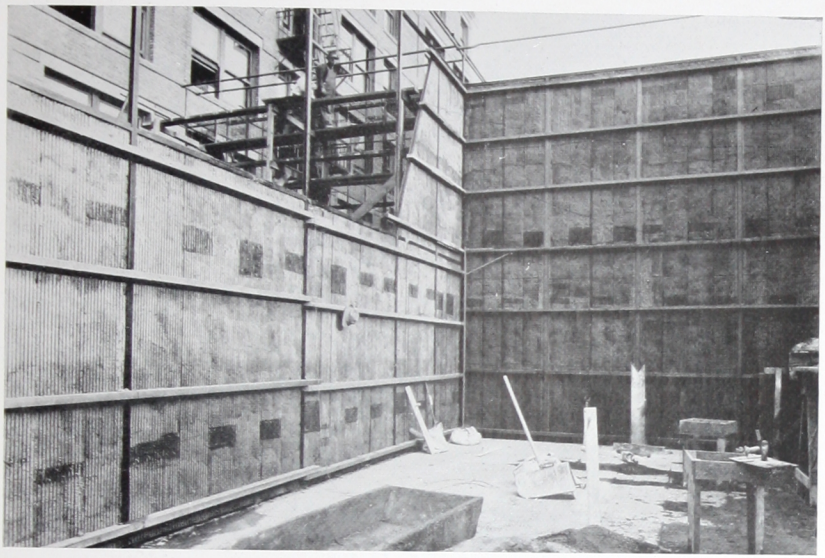


Trussit Partitions in Grandstand

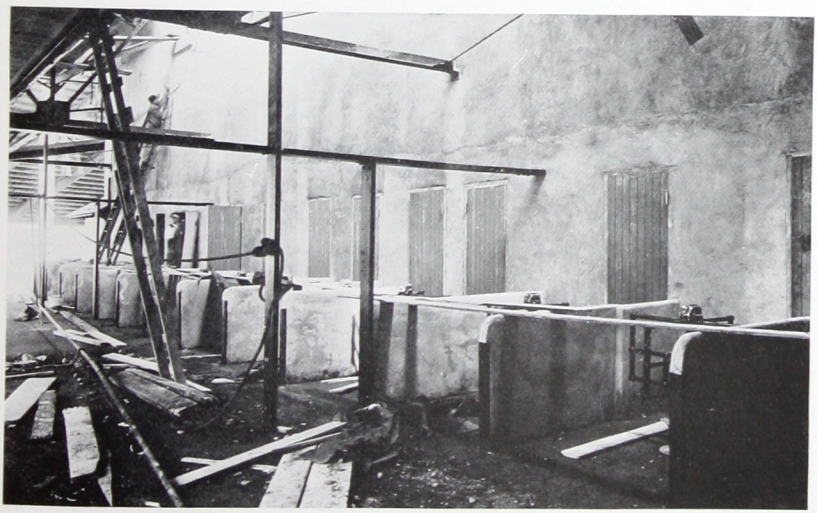


Trussit Ticket Booths—Sixteen Feet High and Without Stiffening Rods of any Kind
Trussit in the Buildings at the New Baseball Park, Detroit, Mich.
Designed by The Osborne Engineering Co., Cleveland

Trussit for Partitions Showing Work Under Construction



Trussit Partitions Forming Hand Ball Courts in the Y. M. C. A. Building at Los Angeles. These Partitions are Twenty Feet High and Fifty Feet Long. Note the Simplicity of the Temporary Supports Used



Trussit Turnstiles—Detroit Baseball Park

Trussit Partitions at Chicago Union Stock Yards

Swift & Company
Union Stock Yards
Chicago

Jan. 22nd, 1912.

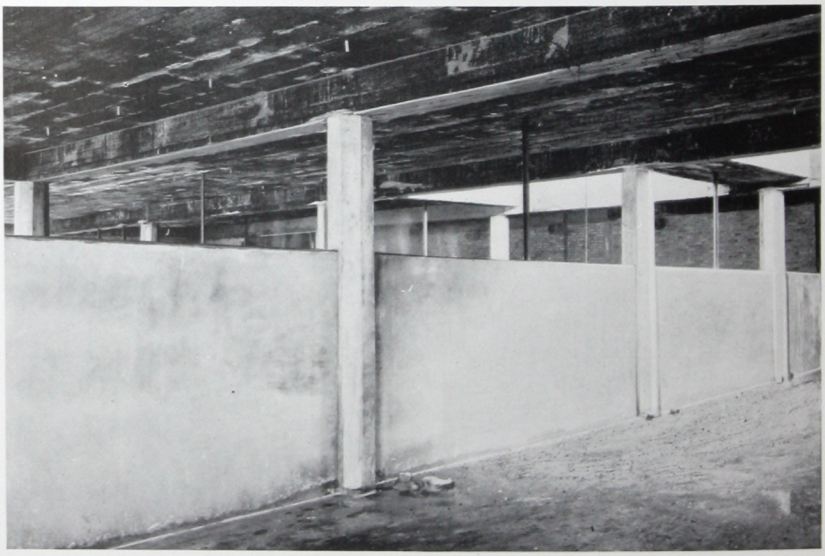
General Fireproofing Company,
72 W. Adams St.
Chicago, Ill.

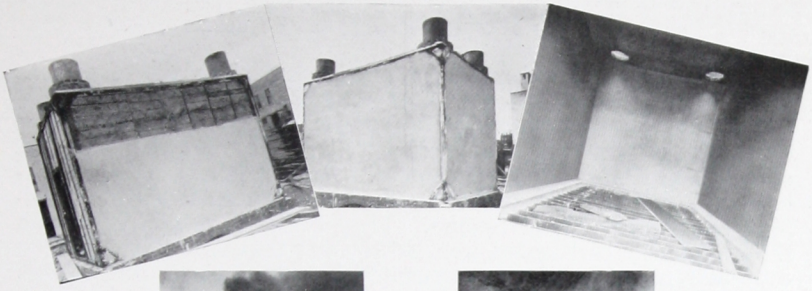
Gentlemen:-

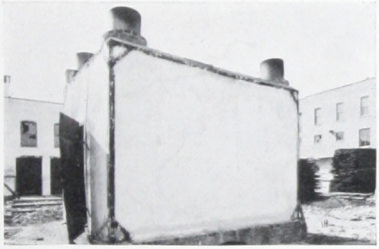
The writer has used your Trussit Metal for Partitions and Roofs in several buildings where the partition was required to withstand a great deal of pressure, such as bumping of trucks, barrels, etc., aud have found the same to be the best substitute for a Brick Partition that I have ever used, and will say that I can recommend the same to anybody wishing to put in partitions in warehouses, factories, etc.

Yours respectfully,

B H Jillson
Archt.







Fire Test on Trussit Partitions New York City

The Trussit partitions for this test were erected on 1¼-inch tees, 4 feet on centers. The partitions were covered on both sides with cement plaster to a total thickness of 2½ inches. They were 9 feet, 6 inches high and 14 feet, 6 inches long.

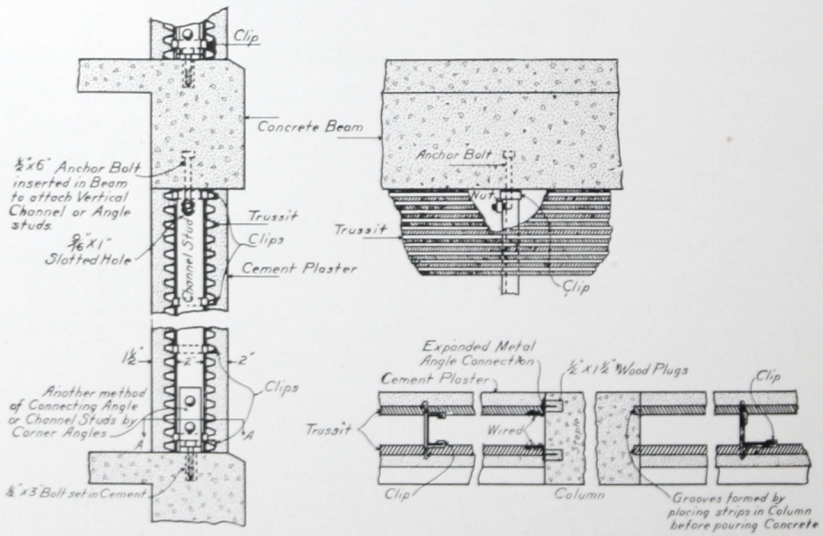
The partition was subjected to an average of 1700 degrees of heat for one hour. At the end of this time a stream of water from a 1⅛-inch nozzle with hydrant pressure was directed against the partition for 2½ minutes. No fire or water passed through the partition at any point. As a result of the test, Trussit was approved in New York City for all interior fireproof partitions, elevator enclosures, dumb waiter and light shafts and bulkheads.

Trussit Curtain Walls

Trussit as a reinforcement for outside curtain walls of cement gives fireproof construction at a cost much less than that of brick, tile or poured concrete. The slabs are reduced to a minimum thickness, yet they are amply strong and rigid, due to the perfect distribution of the reinforcing metal. Unlike the other walls mentioned, they present a perfect finished appearance from the beginning and never require repairs. They cost somewhat more than the antiquated corrugated iron siding, but the rusting and needed continual painting of the corrugated iron in a short time brings the cost far above that of the Trussit wall.

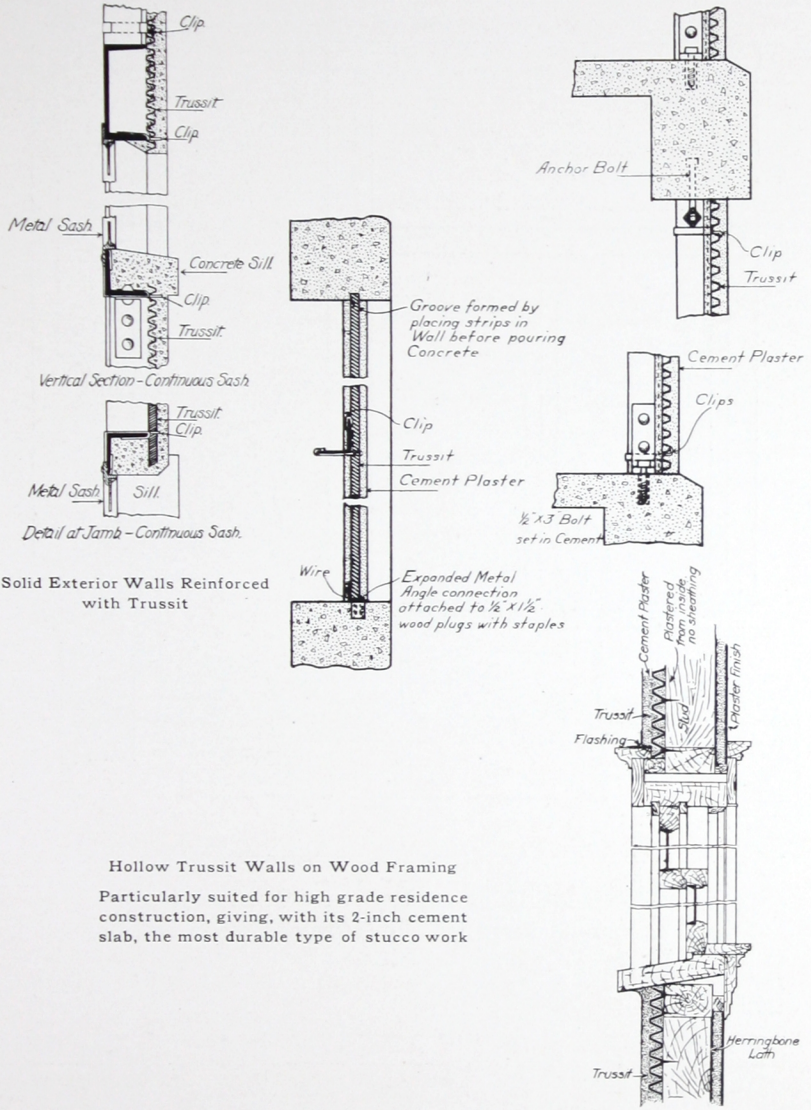
Such walls are simply and quickly erected, no studding or form work being necessary. The sheets are merely set in place, securely fastened at top and bottom and at all laps and to such structural members as are necessary to support floor and roof. Cement plaster is then applied inside and out and the walls are complete. Such construction is particularly adapted to all classes of industrial buildings.

Detail of Trussit Wall Construction



Hollow Exterior Walls Reinforced with Trussit

Detail of Trussit Wall Construction

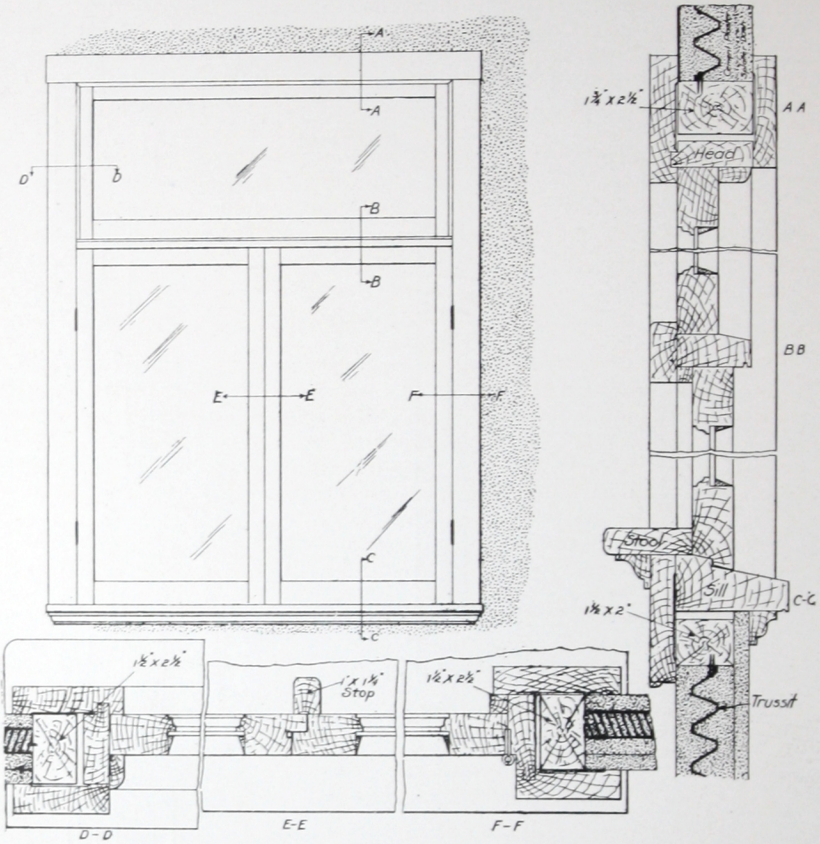


Solid Exterior Walls Reinforced with Trussit

Hollow Trussit Walls on Wood Framing

Particularly suited for high grade residence construction, giving, with its 2-inch cement slab, the most durable type of stucco work

Detail Trussit Wall Construction



A Type of Window Much Used with Solid Trussit Walls

Trussit Curtain Wall Specifications

Trussit as manufactured by The General Fireproofing Company, of Youngstown, Ohio, shall be used as a reinforcement for all exterior curtain walls. Gauges to be used as indicated in the following table:

Spacing of Supports	Wall Thickness	Trussit Gauge
6′	1¾″	27
8′	2″	26
10′	2½″	26
12′	2½″	24

Where supports are more than 6 feet apart, temporary bracing shall be provided on 6-foot centers to give a firm plastering surface until one side has been plastered.

Sheets to be securely fastened to columns and other permanent supports at intervals not to exceed 6 inches, the corrugations running in the direction of the shortest spans.

Where structural supports are used, Trussit shall be attached by special clips (which can be secured from manufacturers) or by wiring. If of wood, staples shall be used; if of reinforced concrete, any method shown in the details herewith can be used.

Side selvedge edges of all sheets shall be securely interlocked and wired together with No. 16 gauge tie wire at intervals not to exceed one foot. The ends of sheets should lap 6 inches if laps occur between supports and not less than 1 inch if over supports. Laps between supports must be properly staggered.

Plastering

A scratch coat shall be applied on the outside first and shall consist of one part Portland cement to three parts of clean, sharp sand, with a small amount of hair and only lime enough to insure a smooth working mortar (preferably about one-tenth by volume). This coat shall be $\frac{3}{8}$ inch over the ribs and well worked into the mesh to properly bind on the inner side. When partly set, this coat shall be well scratched to receive the finish coat.

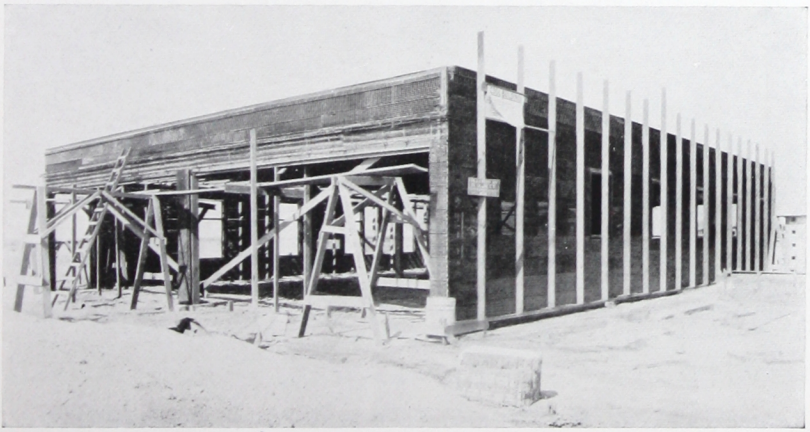
When the first coat has set, any temporary bracing shall be removed and the inside coat applied of the same mix as for the exterior and shall cover the ribs about $\frac{1}{4}$ inch.

The finished outside coat shall then be applied of equal parts of Portland cement and clean, sharp sand. If desired, some form of integral waterproofing may be mixed with the finish coat.

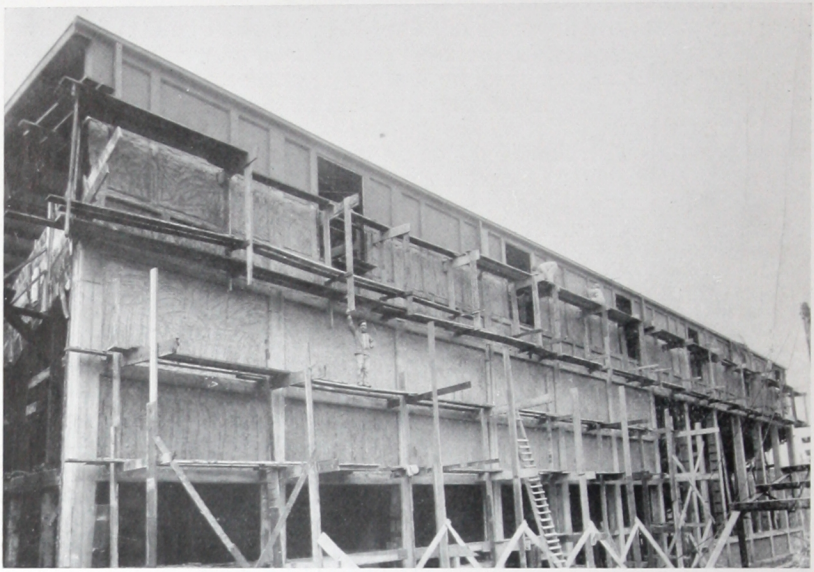
If a thicker wall is required, another inside coat may be added, using either the same mixer as for the first two coats or varying it by using coloring matter, white cement, or white sand to give a more pleasing appearance.

The outside coat may also be varied in the same manner, if desired.

The finished work shall be protected from too rapid setting by wind or sun for several days, either by spraying or by hanging wet burlap curtains in front of the wall.



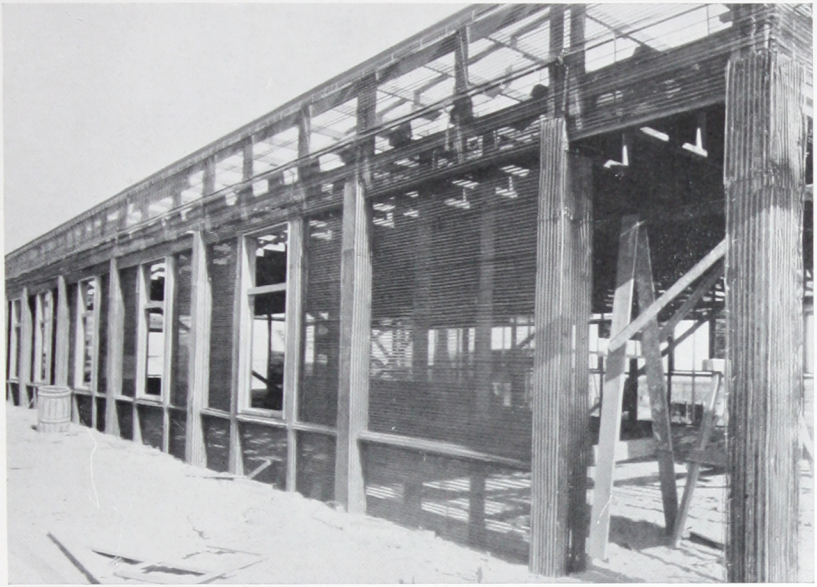
Trussit Walls Under Construction



Trussit Walls on Grandstand—Detroit Baseball Park. Designed by The Osborne Engineering Co., Cleveland

Ingot Iron Trussit Applied to the Walls of The Newburgh Market House, Cleveland, Ohio

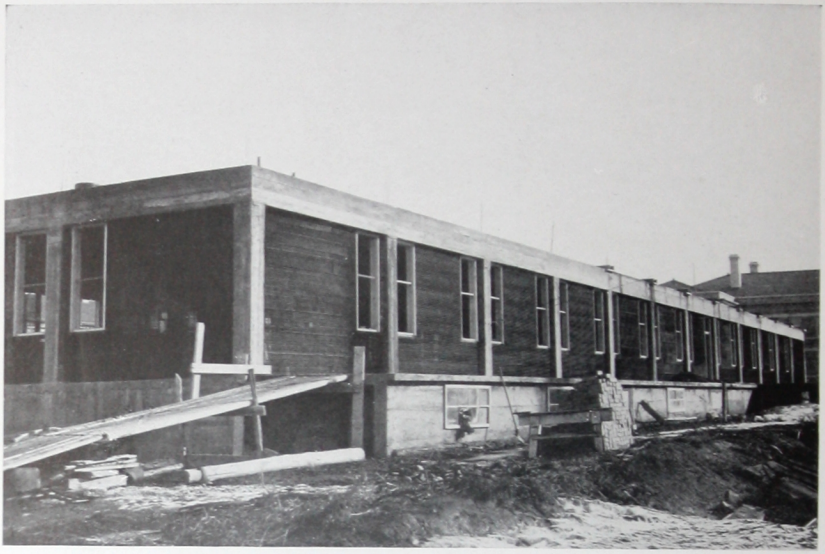
Trussit Walls Under Construction



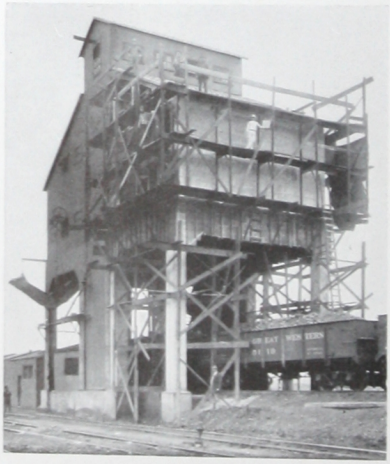
Ernst Faure Building, Van Nuys, California
Built Entirely of Trussit with Wood Studding Inside Columns

Erecting Trussit on Wood Framing—A Milling Warehouse at Lodi, California

Trussit Walls Under Construction

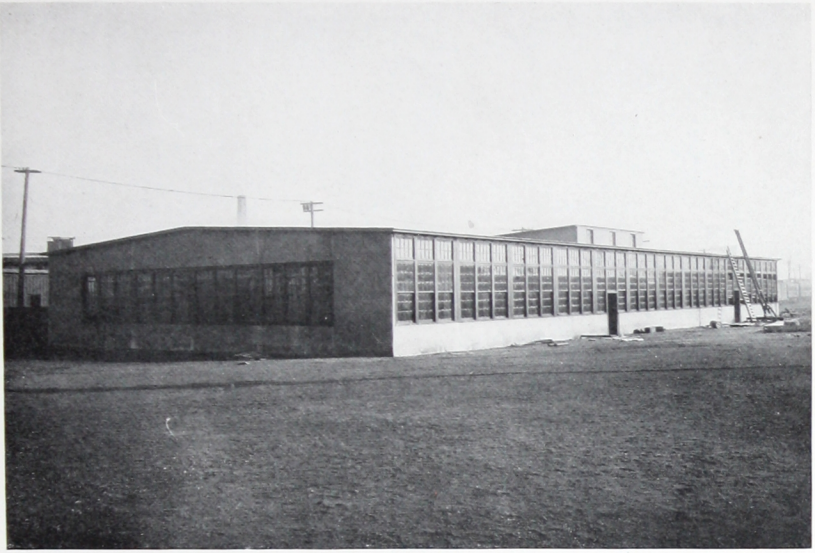


Industrial Building, South Dakota State Hospital, Yankton, S. D.—Trussit Curtain Walls
Dr. L. C. Mead, Supt.



Coaling Station for Chicago & Great Western R. R., Stockton, Ill.—Trussit Walls
Showing Structure Under Construction and Completed

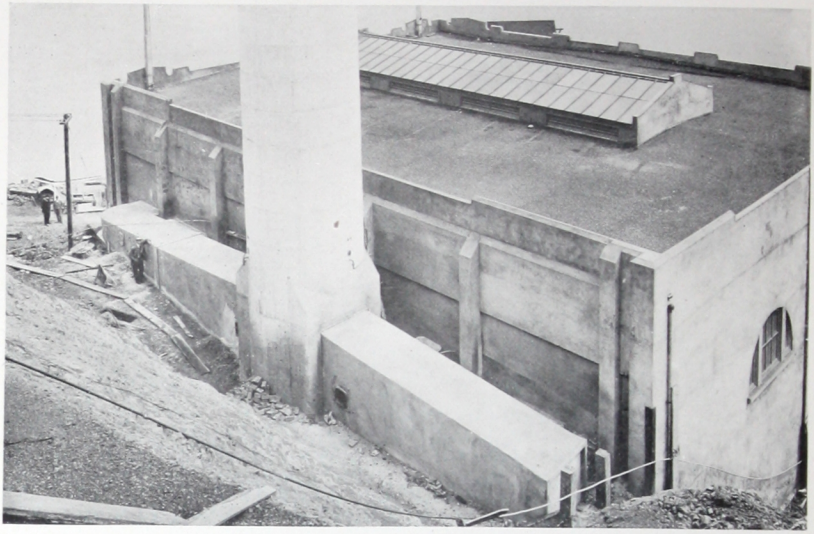
Finished Walls of Trussit Construction



Machine Shop for Wabash R. R. Co., Decatur, Ill.—Trussit Walls

M. K. & T. Ry. Station, Osage, Oklahoma—Trussit Walls

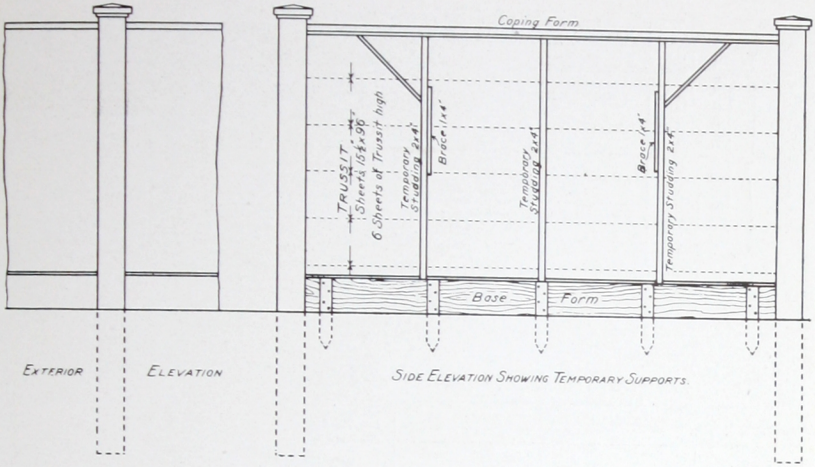
Finished Walls of Trussit Construction

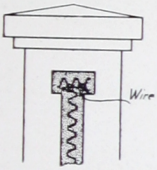


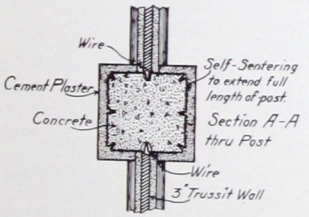
Trussit Smoke Flues—High Pressure Pumping Station, San Francisco, California

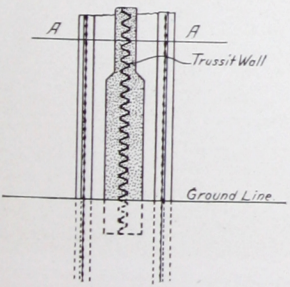
Foundry Building for Bessemer Gas Engine Co., Grove City, Pa.—Trussit Walls

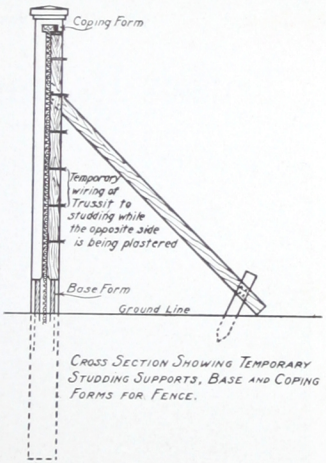
Detail of Trussit Fence Construction





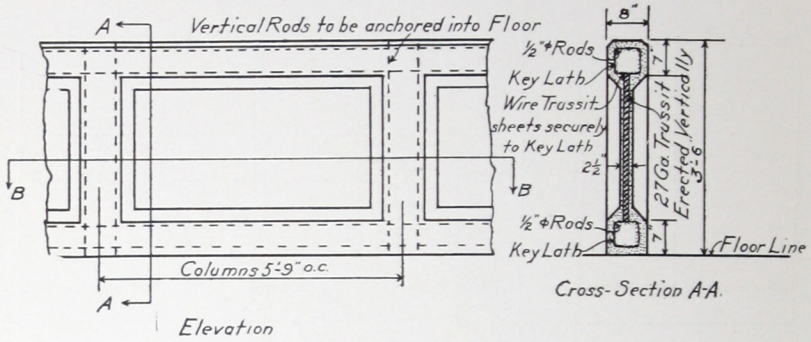


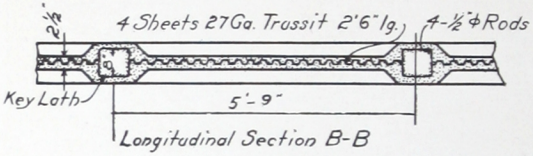



Coping Form
Temporary wiring of Trussit to studding while the opposite side is being plastered
Base Form
Ground Line
CROSS SECTION SHOWING TEMPORARY STUDDING SUPPORTS, BASE AND COPING FORMS FOR FENCE.

Details of Trussit Fence

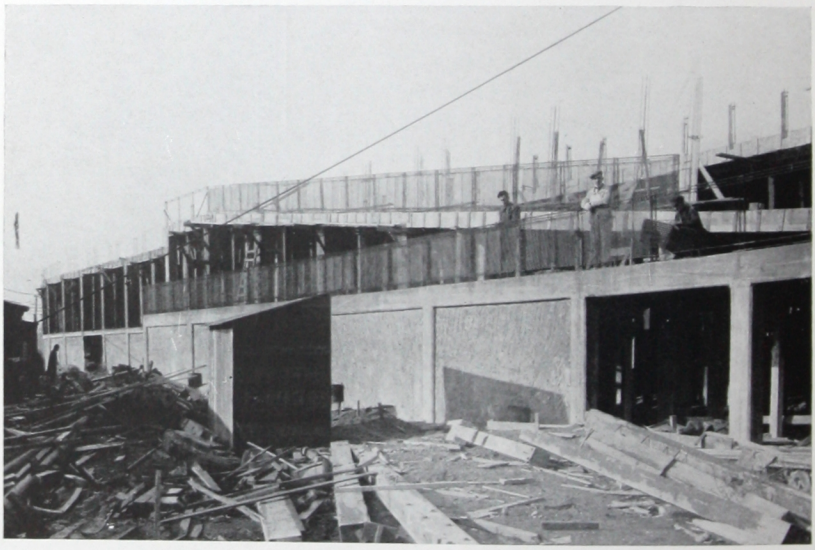
Detail Trussit Railing Construction





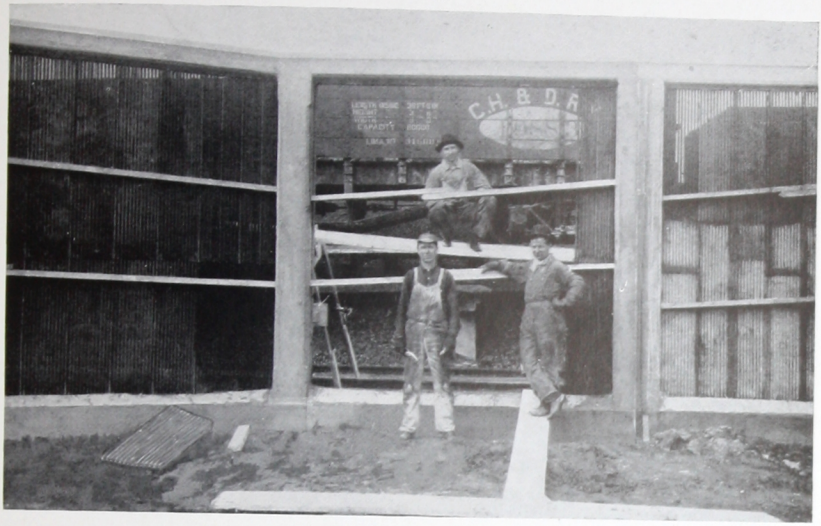
Details of Trussit Railings for Runways and Bridges

Trussit Railings Under Construction



Trussit Railings Ready for Plaster—Detroit Baseball Park
Note Trussit Walls Below—Scratch Coat Applied

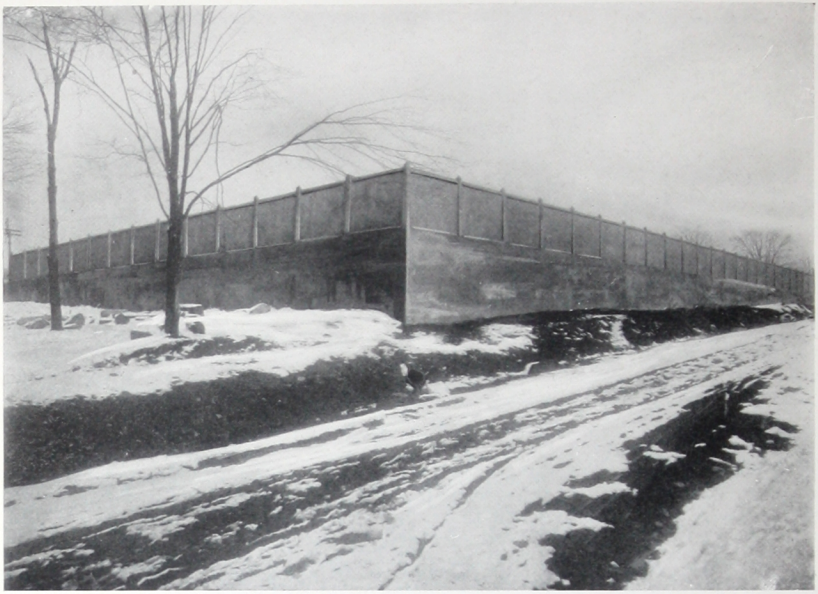
Trussit Fence Under Construction



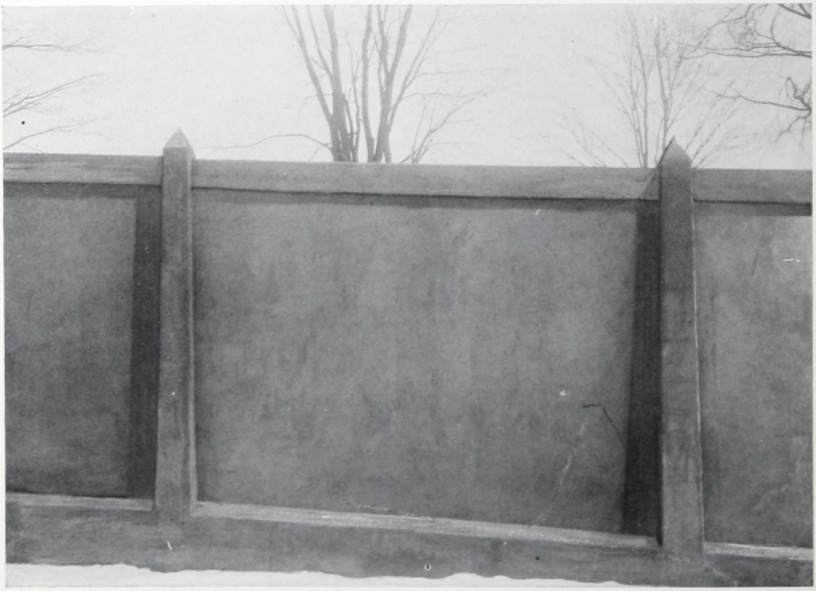
Erecting a Trussit Fence

Plastering Trussit Balustrade Around Military Prison at Alcatraz Island, San Francisco Bay

Finished Fences of Trussit



View of Trussit Fence at Allegheny College



Panel from Trussit Fence

GF
YOUNGSTOWN, OHIO.